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ABSTRACT

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VALIDATION OF VIEWING REPORTS:

EXPLORATION OF A PHOTOGRAPHIC METHOD

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ABSTRACT

A time lapse camera loaded with Super 8 film was employed to photographically record the area in front of a conventional television receiver in selected homes. The camera took one picture each minute for three days, including in the same frame the face of the television receiver. Family members kept a conventional viewing diary of their viewing during the same three day period. Viewing as recorded by the camera and by the viewing diaries were then compared. Only the viewing reported by the family members keeping the diaries appeared valid within this exploratory study. The method employed is proposed as a means for developing interpretative weightings for commercial diary ratings.

VALIDATION OF VIEWING REPORTS:

EXPLORATION OF A PHOTOGRAPHIC METHOD

The commercial television rating reports have become one of the most important and frequently used means of obtaining feedback from American television audiences.[1] While there has been some competition in the major television markets from "overnight" rating services, the most widely used rating method is the diary method. The reasons for this are probably the relatively low cost of these surveys when contrasted with the continuous rating machines such as Nielsen's Audimeter and the American Research Bureau's Arbitron, as well as the relative ease with which a small centrally located staff may survey remote markets. These considerations taken together with the general acceptance of diary surveys by both the broadcasting and advertising industries support the prognosis that the diary ratings are here to stay as the method of choice for collecting viewer preference information.[2]

In light of the foregoing, it is imperative that someone begin to develop improved ways of interpreting diary information. One possibility would be to establish a system for weighting which would counter sources of known bias when diaries are used for data collection. One such weighting system might be built upon the level of attention given to the television set by informants in various family roles and in various socio-economic groups. A series of studies at Ohio State University a decade and more ago has provided some insights into viewer level of attention, but in the interim there seems to have been very little published data from which such

a weighting system could evolve.[3]

Another approach to improving the interpretation of the ratings would be to improve our understanding of the error component in the ratings. The various challenges and defenses of the ratings to date have dealt extensively with sampling error as treated statistically. But the measurement errors inherent in the daaries proper, for example, have been treated only casually. It would be useful to have an independent criterion for validating diary entries. One could speculate that the lady-of-the-house -- who frequently accepts the responsibility of the diary -- will have different rates of reporting errors for each of the viewers she includes in her diary and possibly for each day part reported.

It was with this exploratory objective that the Audience Analysis Laboratory at the University of Kentucky undertook to test a simple photographic method for developing criterion validity coefficients for diary ratings.

Procedure

The procedure was simply to photograph the area in front of a television set for three days while the parents in the family kept a conventional viewing diary. The camera used was a stock Nikon Super 8 motion picture camera which is manufactured with a single frame release. The single frame release was fitted with a PULSAR automatic shutter release designed for time lapse photography. The automatic release was set to trigger the camera shutter for one frame exposure each minute. At this rate the Super 8 film cartridge is completely exposed in three days. In front of the camera lens a front surfaced mirror was positioned so that in the upper half of the frame the front of the TV receiver appears, permitting the analyst to see the picture on the picture tube. The lower half of

the frame photographed the viewing area in front of the television set. Camera, timer and mirror were mounted in a fiber box which sat on top of the television receiver. The film used was Kodak Tri-X, conventionally processed.

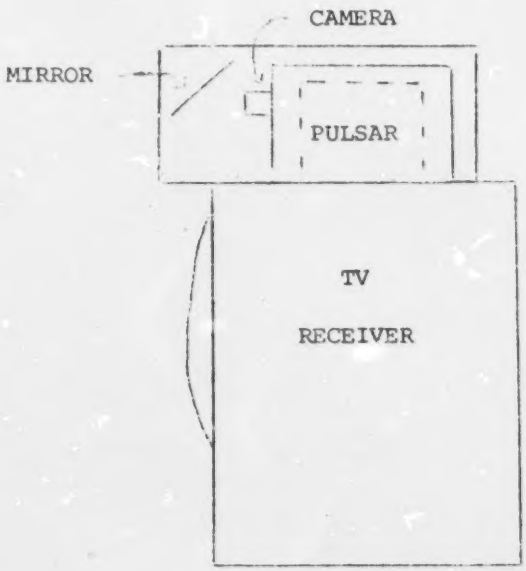

Figure 1. PHOTOGRAPHIC APPARATUS

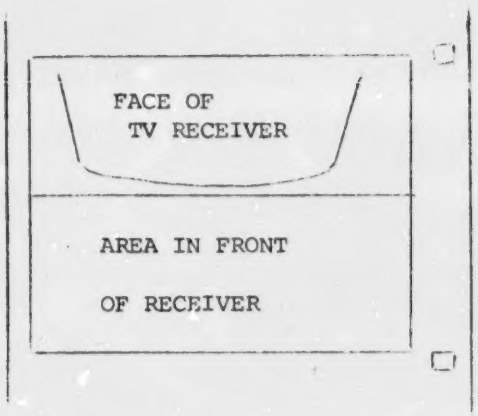

Figure 2. FRAME OF EXPOSED FILM

For this initial exploratory study three families of graduate students and faculty at the University of Kentucky were recruited as diary respondents. Their permission to place the camera box on the television receiver was obtained, and the parents in each family were briefed on the contents of the box and the purpose of the photographic record to be taken. Each set of parents were provided a diary and instructed in its use. It was emphasized with each set of parents that this was part of a University research project. It was the opinion of the investigators that these instructions would markedly bias the results of the study in favor of greater diary accuracy, because the respondents were well educated, trained in systematic observation and were members of the same university community.

At the end of the three-day period the camera box was removed and the family viewing diary collected. After the film was processed, each frame was examined in a conventional Super 8 viewer-editor. A family viewer was given credit as having viewed in a given fifteen minute day part if his image appeared in any five frames during that period. Similarly this same viewer was given credit for viewing in a given fifteen minute day part if the diary reflected five minutes viewing during the day part. These two measures of viewing then became the data for an intraindividual phi correlation. That is, for an individual a correlation was computed reflecting the degree to which his viewing as reported in the diary was associated with his viewing as reported by the camera. From inspection of the diaries it was determined that across the families and days there was one five hours block (6 p.m. to 11 p.m.) which typically contained the bulk of viewing information and was suitable for comparison purposes. The paired scores entering the correlation thus represented twenty day-parts for each of three days yielding an N of 60 for testing the resulting correlation.

Correlations were computed for each diary keeper and for each other person whose viewing was reported by the diary keeper (non-diary keepers).

Results

In all cases the phi correlations were significant at the .05 level. For diary-keepers the phi correlations between diary reports and photographic reports were .56, .61 and .90. The equivalent phi correlations for non-dairy-keepers were .20, .38 and .49.

The correlations for diary-keepers were merged using Fisher's Z, as were the correlations for non-diary-keepers. The two mean correlations were then compared as advocated by Hays.[4] The mean phi correlation for diary-keepers was .848, while that of non-diary-keepers was .377, significantly different at the .05 level.

Discussion

The correlation between diary record and photographic record for diary keepers, .848, seems high until one recalls that the explanatory power of this correlation is indexed by r^2, the coefficient of determination.[5] In simpler terms, that means that $(.848)^2$ or about 72 per cent of the variance in the photographic record followed the variance of the diary record. Considering the anticipated direction of the biases involved in family selection and instructions in this exploratory study, the criterion validity provided by the photographic record is not impressively high.

For non-diary-keepers the coefficient of determination is much lower, $(.377)^2$ or about 14 per cent. This low value implies that diary records for those non-diary-keepers were nearly useless.

Of course, the small size and selective nature of the sample in this exploratory study do not permit speculation as to the nature of diary accuracy in the general population. But these results do strongly indicate

that further study is appropriate and urgent.

Proposal

The exploratory study also provided some insights into possible improvements in a larger study of this sort. In terms of apparatus, wiring the automatic shutter release of the camera to the on/off switch of the television receiver would greatly have extended the time that the apparatus could operate without reloading film. Investigation of camera catalogues indicates that there are a number of cheaper cameras available with wide angle lenses and single frame release that could be adapted.

As for analytic procedure, frame-by-frame analysis would be greatly facilitated by using a stop-motion-analysis projector, a number of which are available on the market.

As for sample design, a first cut and representative sample might be obtained by soliciting the cooperation of broadcasters or research agencies in a set of the largest markets, asking them to obtain a hundred films for analysis at some central point. The resulting data could then be analyzed by computer to yield regression coefficients, usable as weights in interpretation of data collected by the viewing diary method.

ENDNOTES

[1]Ratings correspond to the description of purposive feedback given in Bruce H. Westley and Malcolm S. MacLean, Jr., "A Conceptual Model for Communications Research," Journalism Quarterly, 34:36-38 (1957). (Republished in Alfred G. Smith [ed.], Communication and Culture, New York: Holt, Rinehart and Winston, 1966), pp. 80-87.

[2]Martin Mayer, "How Good Are Television Ratings," in Lawrence W. Lichty and Joseph M. Ripley, II [eds.]. American Broadcasting, 2nd ed. (Madison, Wis.: College Printing and Publishing, 1970), pp. V-190 - V-201.

[3]Joseph M. Ripley, Jr., "Levels of Attention of Women Listeners to Daytime and Evening Television Programs in Columbus, Ohio," in American Broadcasting, pp. v-140 - V-147.

Don C. Smith, "Television Programs Selection, Liking for Television Programs, and Levels of Attention Given to Television Programs by Housewives in Tuscaloosa, Alabama," American Broadcasting, pp. V-148 - V-155.

Lawrence W. Lichty and Malachi C. Topping, Jr., "A Study of The Friday Night Television Audience in Four Small Ohio Communities: Audience Composition, Program Selection, Housewives' Attention, and Audience Flow," extracted in American Broadcasting, pp. V-156 - V-161.

Lawrence W. Lichty and Joseph M. Ripley, II, "Attention Given to Television Programs: A Comparison of Three Studies," American Broadcasting, pp. V-162 - V-166.

[4]William L. Hays. Statistics (New York: Holt, Rinehart and Winston, 1963), p. 532.

[5]David Magnusson. Test Theory (Reading, Mass.: Addison-Wesley, 1967), p. 143.